CLIO CUP

USER MANUAL

G. Data acquisition



RENAULT SPORT

RENAULT

6 DATA ACQUISITION

CONTENTS

6.1 OPERATING SOFTWARE

6.1.1 PRESENTATION

The vehicle is supplied with a CD-ROM containing the following software applications:

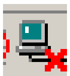
- Vision 4.17.08 Lite,
- Wintax3 Junior,
- Watch Tower.

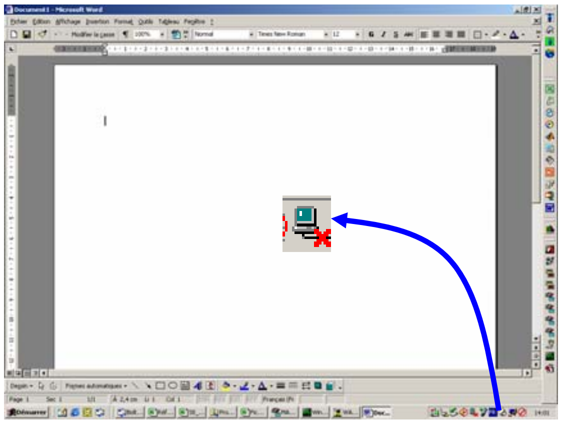
Installation of these software applications is explained in the "Read_me_UK.txt" file which is also included on the CD-ROM.

6.1.2 ETHERNET COMMUNICATIONS

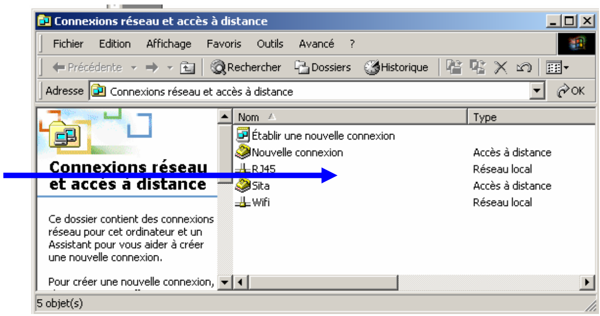
An Ethernet communications protocol is used between the injection ECU and computer. The IP addresses and sub-network mask of your computer have to be configured.

Setting the Internet protocol properties (TCP/IP) of your computer:

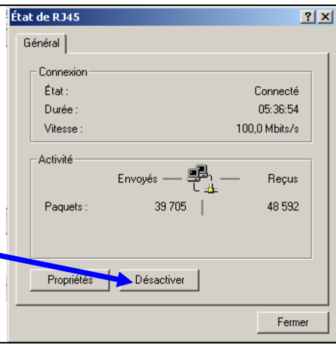
1 - Click on the  icon in the task bar of your computer.



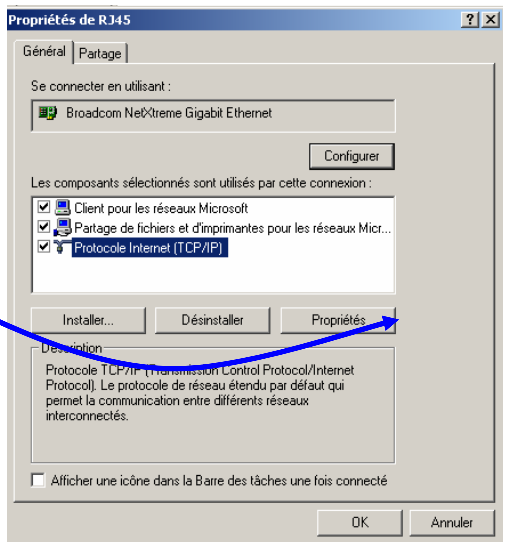
2 - Click on the active network connection.



3 - Click on "Properties".



4 - Select the line "Internet Protocol (TCP/IP)" and then click on "Properties".

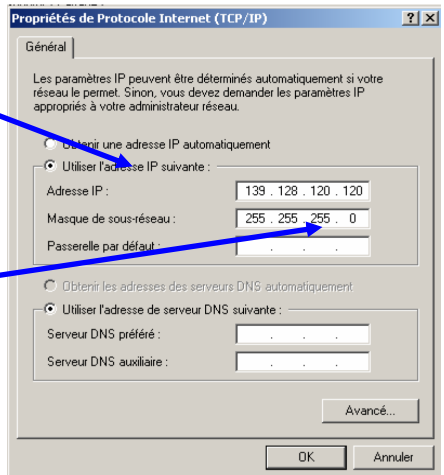


5 - Check "Use the following IP address".

6 - Fill in the fields as shown:

- Adresse IP : 139.128.120.120
- Masque de sous-réseau : 255.255.255.0

Click on "OK".



7 - Your computer is now ready to receive and send data.

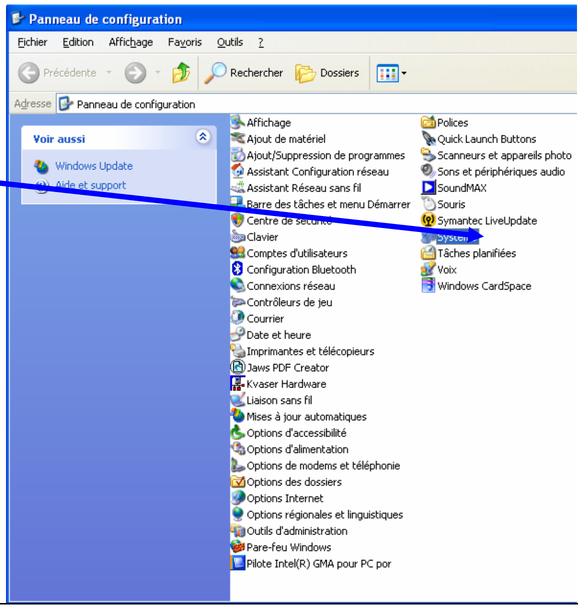
8 - Depending on which version of the operating system your computer is running, you may have to restart your computer for the change of IP address to take effect.

REMARK EVO 2010 :

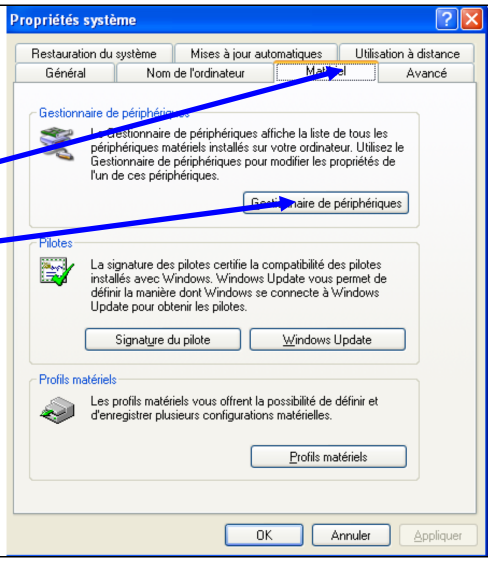
The transfer rate has been upgraded for 2010 with the new ECU update. To allow the communication you have to check that the communication speed is at “Automatic” and not reduced at “10mb full”
To do this, please follow the instructions :

1 -

please click successively on :
« Start Menu »
« parameters »
« control panel »
« system»

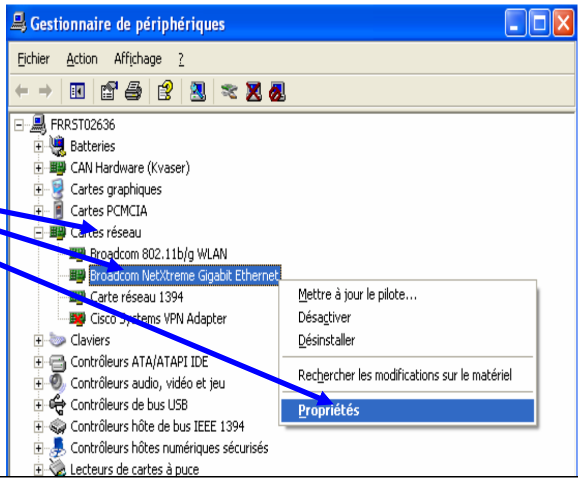


2 - Click on the tab « material » then « Device manager »



3 - Select the Network card

then RIGHT click on the Network card then click on « properties »

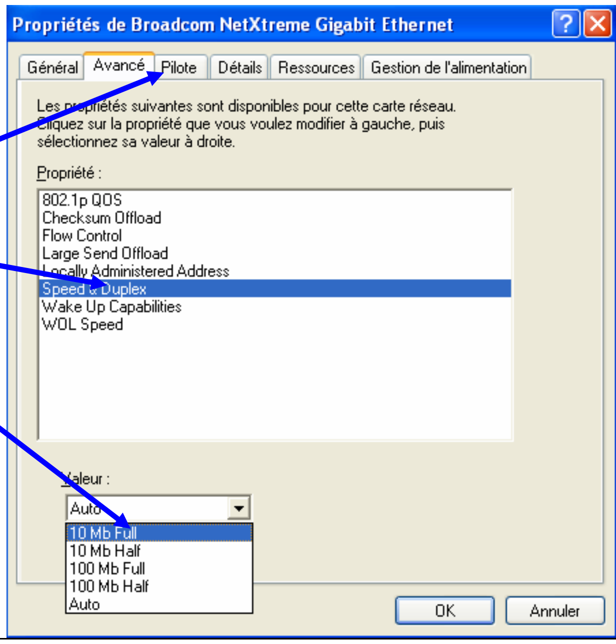


4 - Select the tag « Advanced »

click on « speed & duplex »

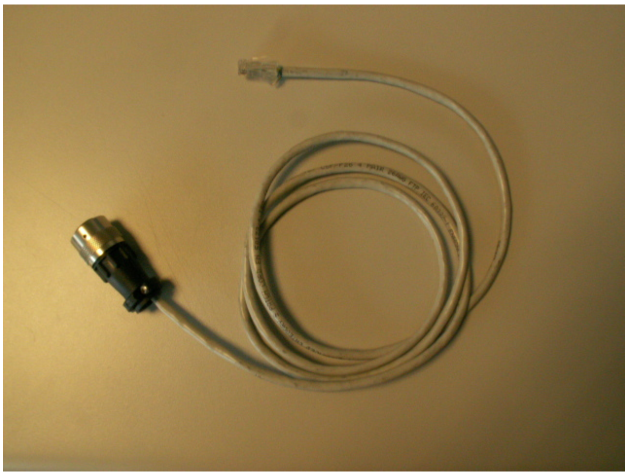
set to "10Mb Full"

Click on "OK"



6.1.3 COMMUNICATION WIRE

The communication between the car and the computer is made by using the wire available with the car (ref **77 11 162 628**).



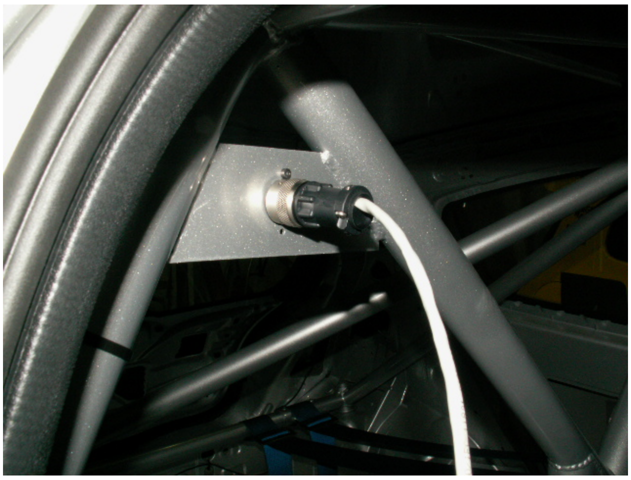
<u>CAUTION:</u> the previous ref 77 11 158 152 (confer the picture) is no longer available. If you have untimely communication problems, please make sure that you have the new reference 77 11 158 628

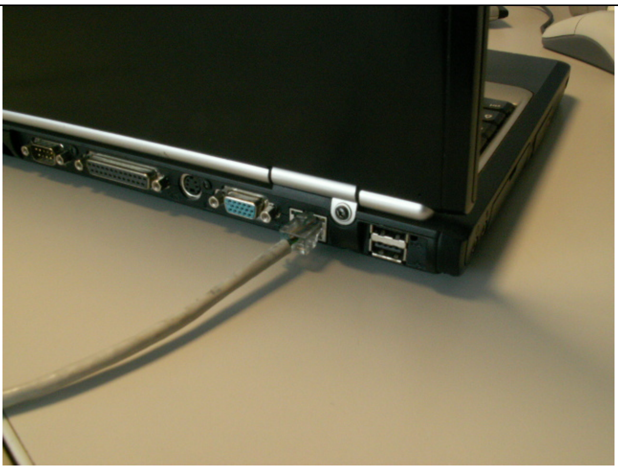
The communication plug of the car is located in the top right corner of the roll cage.



Wire pluggin :

- on the car



- on computer, with the network plug (RJ45)	

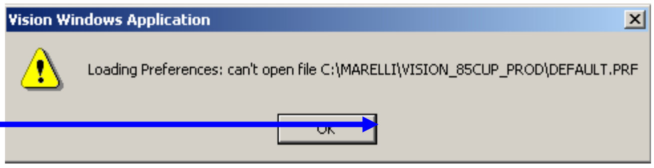
6.1.4 VISION 4.17.08 LITE APPLICATION

The Vision application is used to view all of the information from the vehicle's sensors in real time.
You are advised to use it when starting the engine to check all the engine parameters during the startup and warm up phases.
It must be used if vehicle operating problems are experienced.

1st use:

1 - Start Vision.

2 - The “Vision Windows Application” window opens.
Click on “ok”



3 - In the “File Open” menu” select «X85_CUSTOMER.cfg» file

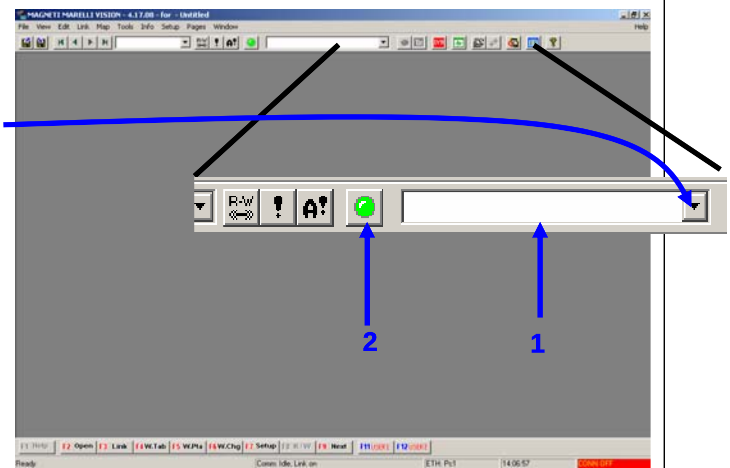
Note: *This file is contained in the menu “Files for Vision 4” on the CD-ROM supplied with the vehicle. All the directory where is the file must be copied on your computer, in the root of Vision.*

4 - Turn on the vehicle's electrics (switch **(1)** on the control panel).

5 - Connect the Ethernet communications lead (ref **77 11 162 628**).

6 - Select the name of the ECU (SRT_xx / Clio Cup 2006) in window **(1)** by clicking on the drop down list arrow.
Then click on the enable communication button **(2)**.

Note: *If, when starting Vision, the communication button* ***(2)*** *is yellow, communication must be disabled by clicking on it (the button turns red), before selecting the ECU.*



7 - The Watchtower application should start automatically.

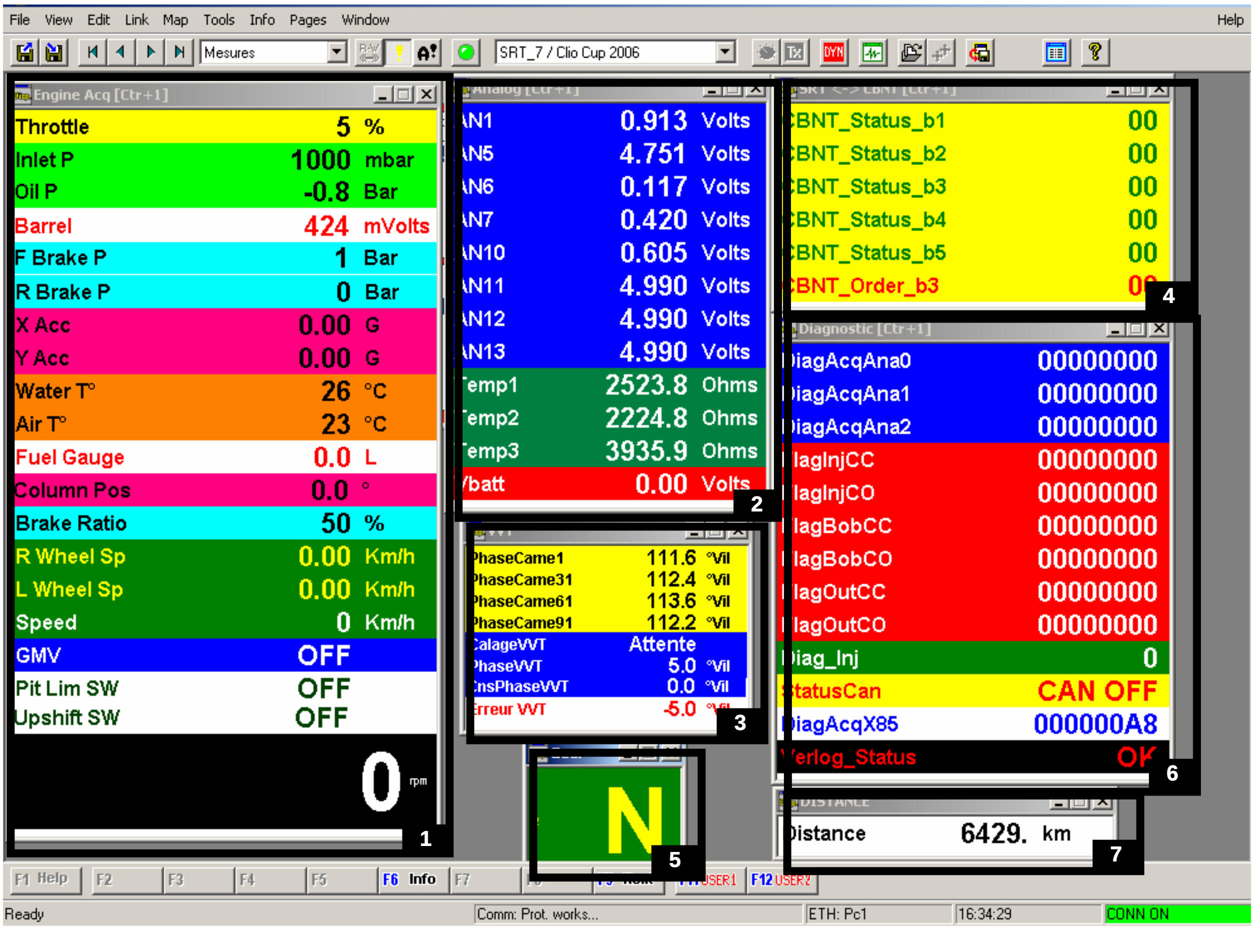
8 - The communication button turns green showing that communications with the injection ECU have been established.

9 - The window « Mesures » opens

Use

1 -	Start Vision.
2 -	In the “File Open” menu” select «X85_CUSTOMER.cfg» file.
3 -	The window « Mesures » opens.

Window « Mesures »



The available information is shown by area :

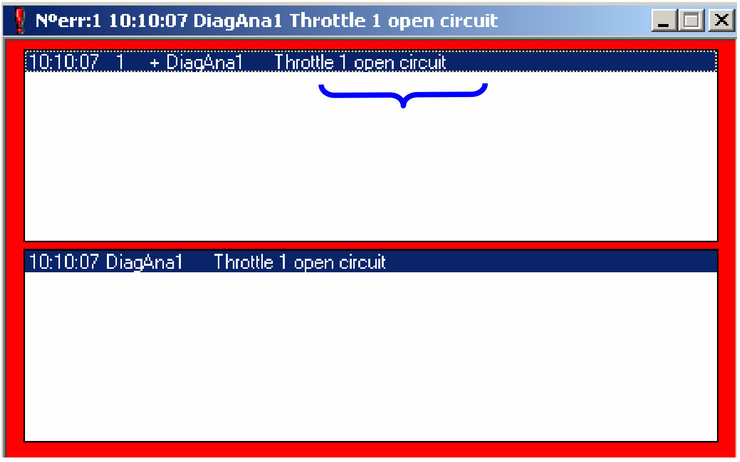
Area	Name	Physical meaning	Unit
1	Throttle	Engine throttle position	%
	Inlet P	Engine inlet manifold pressure	mbar
	Oil P	Engine oil pressure	bar
	Barrel	Gearbox barrel sensor position	mV
	F Brake P	Front brake pressure *	bar
	R Brake P	Rear brake pressure *	bar
	X Acc	Vehicle longitudinal acceleration *	g
	Y Acc	Vehicle lateral acceleration *	G
	Water T°	Engine water temperature	°C
	Air T°	Engine air intake temperature	°C
	Fuel Gauge	Fuel contained in the fuel tank	L
	Brake ratio	Brake balance front/rear *	% front
	Column Pos	Steering wheel position	°
	R Wheel Sp	Front right wheel speed	kph
	L Wheel Sp	Front left wheel speed	kph
	Speed	Vehicle speed	kph
	GMV	Fan unit state	-
	Pit Lim Sw	Pit limiter switch state	-
	Upshift SW	Upshift switch state	-
	Revs	Engine revs	rpm
2	AN1	Engine throttle position	V
	AN5	Engine inlet manifold pressure	V
	AN6	Engine oil pressure	V
	AN7	Gearbox barrel sensor position	V
	AN10	Front brake pressure *	V
	AN11	Rear brake pressure *	V
	AN12	Vehicle longitudinal acceleration *	V
	AN13	Vehicle lateral acceleration *	V
	Temp1	Engine water temperature	ohm
	Temp2	Engine air intake temperature	ohm
	Temp3	Fuel contained in the fuel tank	ohm
	Vbatt	Tension battery *(if Ignition/Injection On)*	V
3	PhaseCame1	VVT position learning	° crankshaft
	PhaseCame31	VVT position learning	° crankshaft
	PhaseCame61	VVT position learning	° crankshaft
	PhaseCame91	VVT position learning	° crankshaft
	CalageVVT	Intake camshaft position	° crankshaft
	PhaseVVT	Camshaft phase shifter control	° crankshaft
	CnsPhaseVVT	VVT phase shift order	° crankshaft
	Erreur VVT	Difference between PhaseVVT and CalageVVT	° crankshaft

4	CBNT_Status_b1	CBNT 1A permanent exits diagnosis	-
	CBNT_Status_b2	CBNT 5A permanent exits diagnosis	-
	CBNT_Status_b3	CBNT 5A ordered exits diagnosis	-
	CBNT_Status_b4	CBNT 25A ordered exits diagnosis	-
	CBNT_Status_b5	CBNT control diagnosis	-
	CBNT_Order_b3	CBNT 12V control	-
5	Gear	Gear	-
6	DiagAcqAna0	SRT-R analogical inlets diagnosis	-
	DiagAcqAna1	SRT-R analogical inlets diagnosis	-
	DiagAcqAna2	SRT-R analogical inlets diagnosis	-
	FlagInjCC	Short-cut injectors detection	-
	FlagInjC0	Opened circuit injectors detection	-
	FlagBobCC	Short-cut coil detection	-
	FlagBobCO	Opened circuit coil detection	-
	FlagOutCC	SRTR exits short-cut detection	-
	FlagOutCO	SRTR exits opened circuit detection	-
	DiagInj	Continuous injection detection	-
	StatusCan	CAN 1 line state	-
	DiagAcqX85	Data acquisition kit sensors diagnosis	-
	Verlog_Status	“Software bolt” state	-
7	Distance	Milometer	km

* *these channels are only active if the data acquisition kit is used*

6.1.4.1.1 Window « Diagnostic »

As soon as the system finds a default, the window of diagnosis opens, and noticed the default (exaple : throttle sensor position in opened circuit).



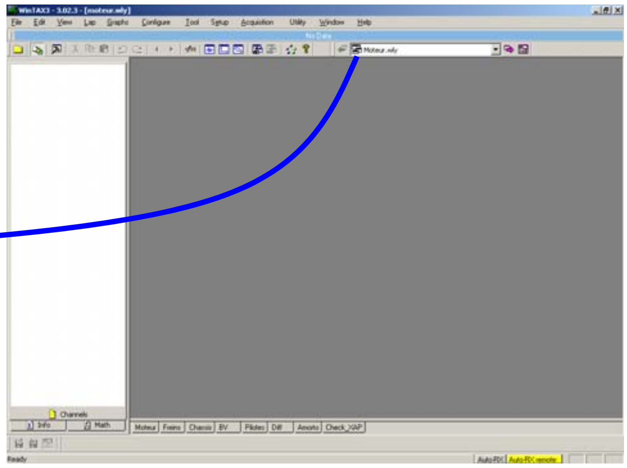
6.1.5 WINTAX 3 JUNIOR APPLICATION

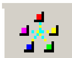
This application is used to download data recorded whilst the vehicle is being driven and subsequently to analyse this data.

The basic operations are explained below. For further information, refer to the full Wintax 2 and 3 operating instructions available on the CD-ROM supplied with the vehicle.

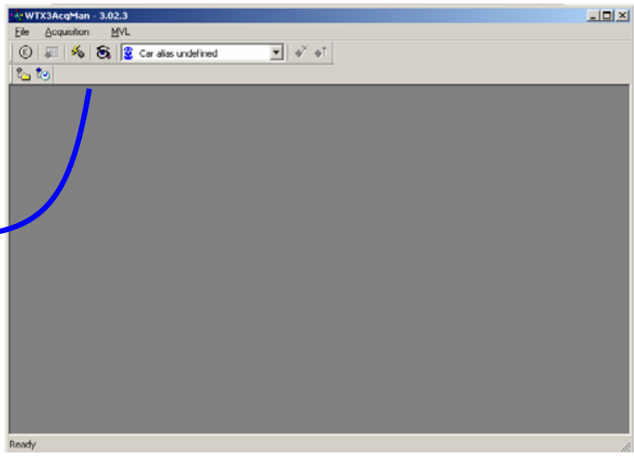
Downloading

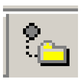
1 - Start Wintax 3 Junior.



2 - Click on the icon: 

The “Acquisition Manager” (Acq Man) window opens.

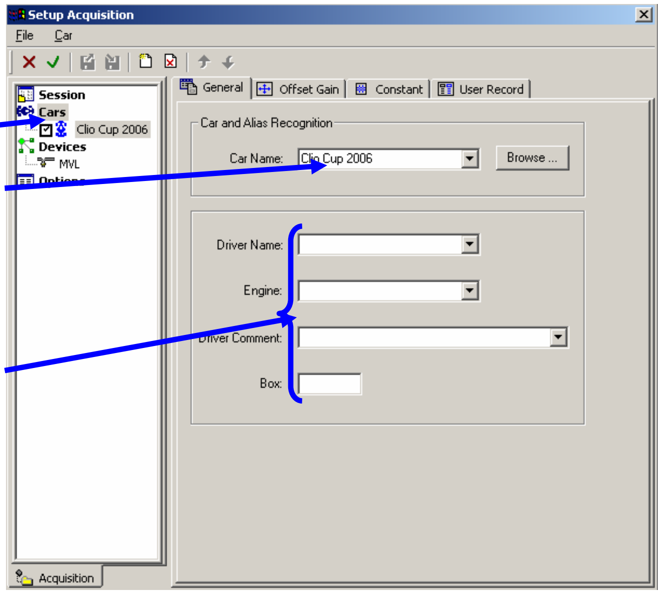


3 - Click on the icon: 

The “Setup Acquisition” window opens.

4 - Select the "Cars" line.
Check the name of the vehicle in the "Car Name" line.
This should be **Clio Cup 2006**. If it is not, enter **Clio Cup 2006**.

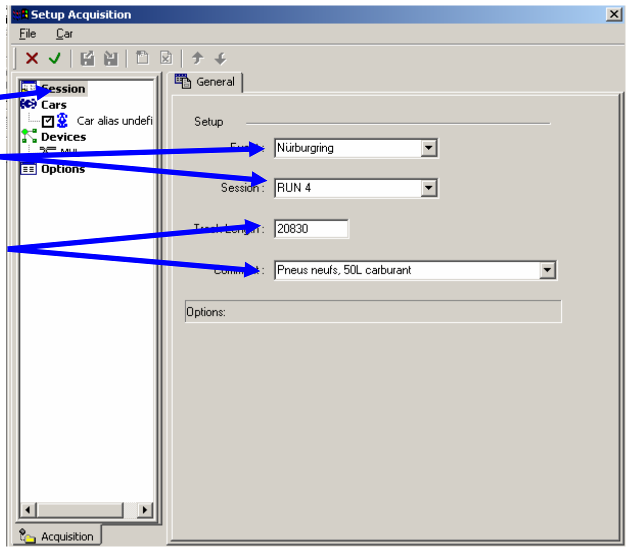
If you wish, enter the "Driver Name", "Engine", "Driver Comment" and "Box" fields.



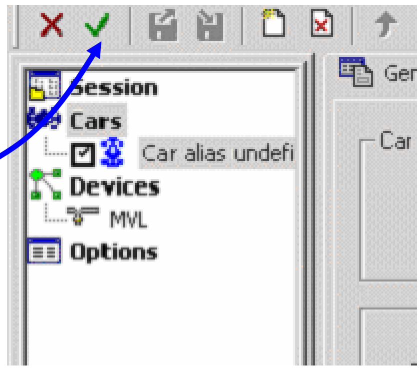
5 - Click on the "Session" line.
You are advised to complete the "Event" and "Session" fields.

If you wish, complete the "Track length" and "Comment" fields.

The downloaded data is saved on your computer in the following location: **C:\Wintax3\Data\Event\Session**.
In this particular case, that is: **C:\Wintax3\Data\Nürburgring\Run4**.



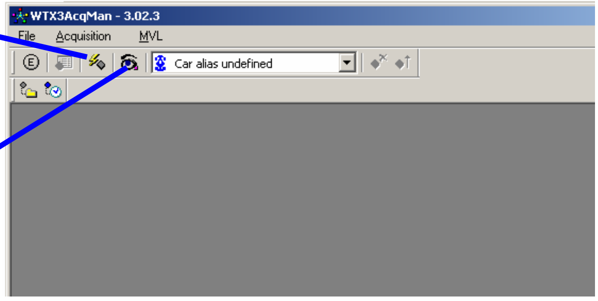
6 - Confirm the modifications by clicking on the icon:



7 - Connect the communications lead (ref **77 11 162 628**) and switch on the vehicle's electrics.

Click on the icon: 

8 - The Watchtower application should start automatically.

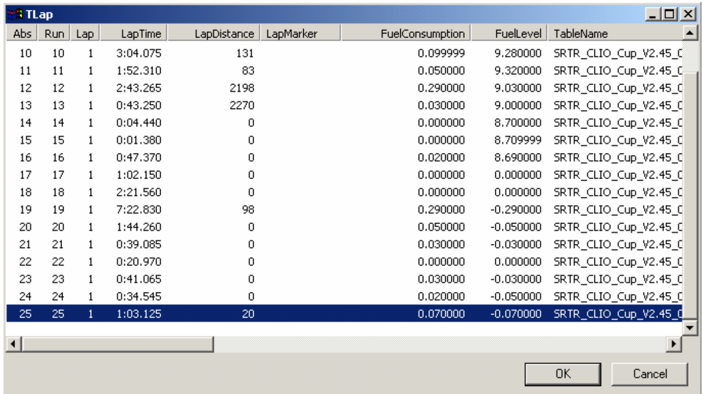


The icon should turn green: 

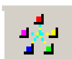
9 - Click on the icon: 

The data acquisition download window opens.

10 - Then select the required lap or laps and click on “OK”.



Deleting data from the logger

1 - Click on the icon: 

2 - Click on the icon: 

Click on the icon: 

3 - ***Note:*** *Once data has been deleted, you are advised to re-initialize the data logger.*

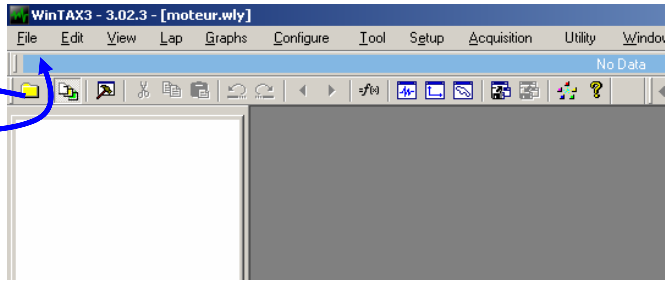
To do this, click on the  icon and then on “OK”.

Opening saved data

1 - Click on the icon:

or select "File-open data"

or else press CTRL+F3.

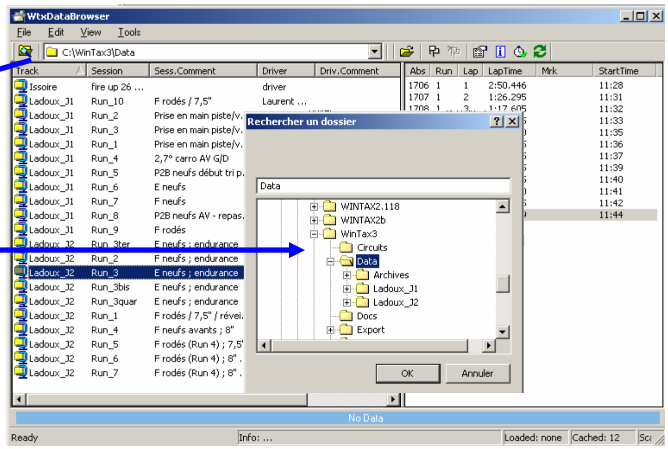


2 - The "data browser" window opens.

Click on the icon: and then

select the path where the data is to be saved.

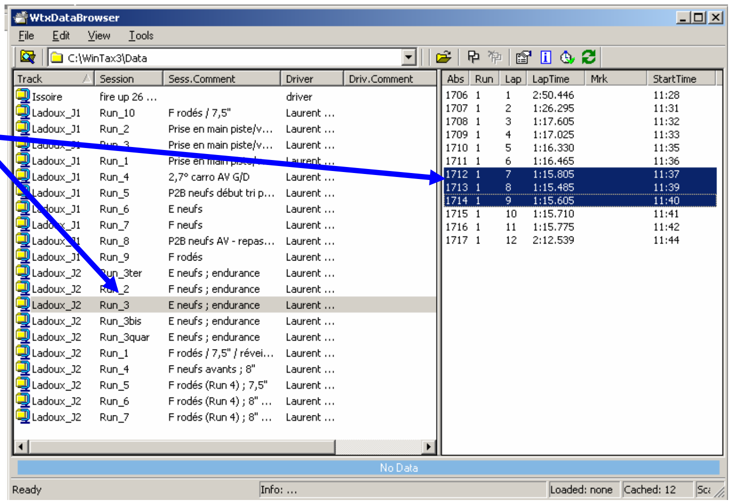
By default, it is saved in **C:\Wintax3\Data**.



3 - Click on "OK".

4 - Select the required run.
and then the lap or laps to be analysed.

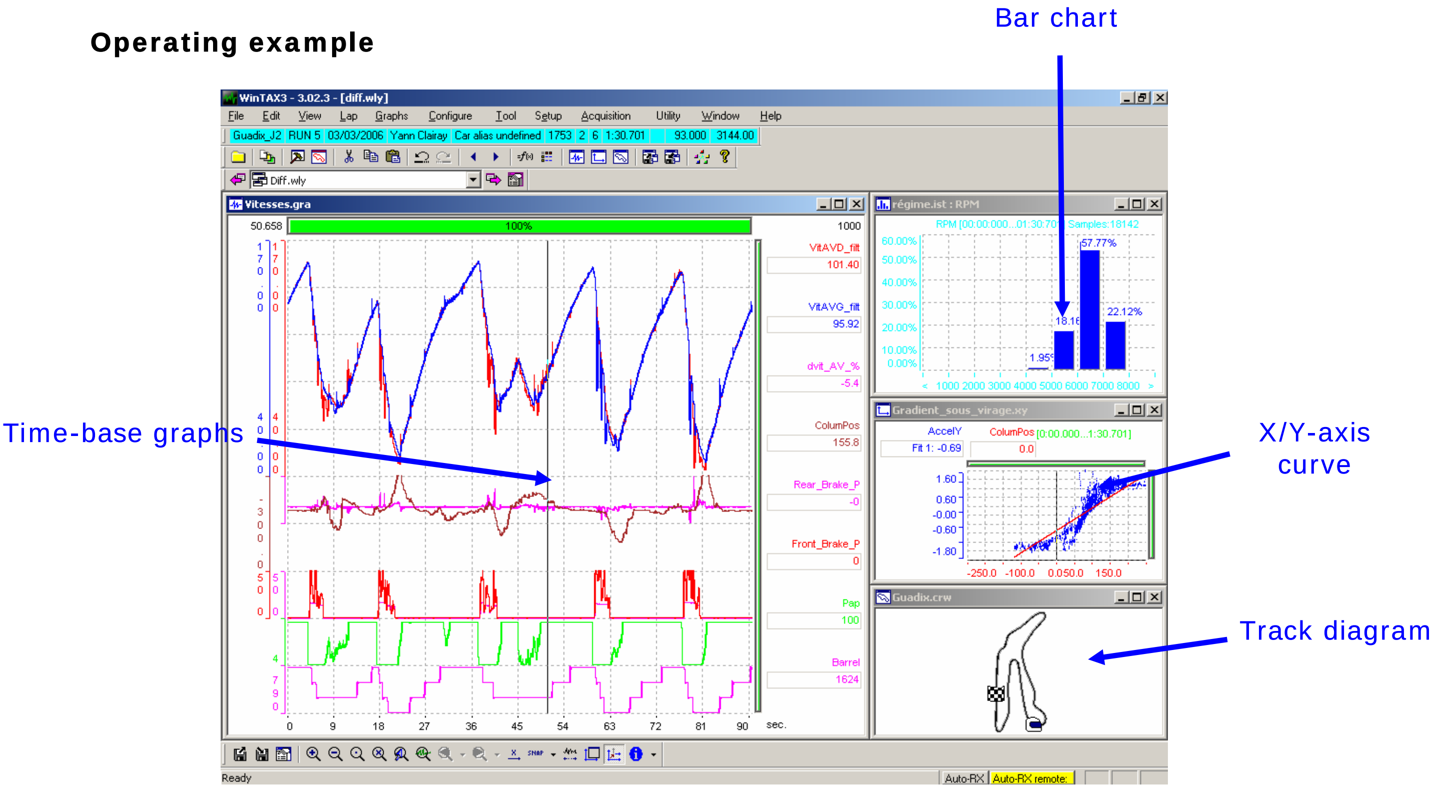
5 - Click on or press "Enter" on your keyboard to access the data.



Once the data has been opened, graphs, tables and circuit maps, as well as all the graphical and numerical tools required to analyse the results may be created.
For further information, refer to the "Wintax User Guide" operating manual available on the CD-ROM supplied with the vehicle.

NOTA: a few "Graphic Layouts" are available on the CD-ROM supplied with the vehicle, in the menu "Files for Wintax 3". Paste the directoy "Users" in the root of Wintax 3.

Operating example



Circuit Computation

1 - Go to setup>general>miscellaneous

2 - Check in the tab distance if "automatic" is marked well

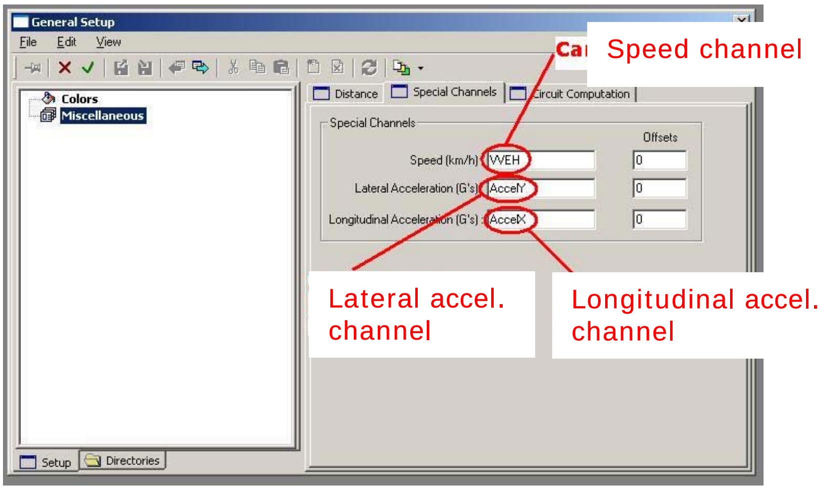
3 - Fill the tab special channels as shown below

4 - Tick "auto correction" in the tab circuit computation

5 - Create a circuit window

6 - Open a data file

7 - Press CTRL+O to update the track



6.1.6 ACQUISITION TABLE

The SRT-R injection ECU has a 16Mb data acquisition storage capacity which corresponds to approx. 80 minutes of storage.

The acquisition table below cannot be modified by the user. All analogue inputs have already been calibrated and no additional sensors other than those contained in the optional data acquisition kit (see next section) can be used.

Channel name	Physical meaning	Unit	Frequency
Air_T	Intake air temperature	°C	20Hz
AccelX	Longitudinal acceleration *	g	20Hz
AccelY	Lateral acceleration *	g	20Hz
Baro_P	Atmospheric pressure	mbar	20Hz
Barrel	Gearbox barrel position	mV	200Hz
Brake_Ratio	Front / rear brakes split *	%	20Hz
VVT_TG	VVT position set-point	°Vil	20Hz
Steer	Steering wheel position	°	20Hz
Lap_Cons	Calculated consumption	cL	20Hz
Demul_Bkup_1	1st gear cascading calculation	-	20Hz
Demul_Bkup_2	2nd gear cascading calculation	-	20Hz
Demul_Bkup_3	3rd gear cascading calculation	-	20Hz
Demul_Bkup_4	4th gear cascading calculation	-	20Hz
Demul_Bkup_5	5th gear cascading calculation	-	20Hz
Demul_Bkup_6	6th gear cascading calculation	-	20Hz
DiagAcqAna0	Analogue input diagnostics	-	20Hz
DiagAcqAna1	Analogue input diagnostics	-	20Hz
DiagAcqAna2	Analogue input diagnostics	-	20Hz
DiagAcqX85	Optional acquisition kit input diagnostics	-	20Hz
Lap_DI	Current lap distance (covered since last signal to beacon)	m	20Hz
VVT_Err	Error between VVT set-point and reading	°Vil	20Hz
FlagCoil0C	Ignition diagnostics: open circuit	-	20Hz
FlagCoilSC	Ignition diagnostics: short circuit	-	20Hz
FlagInj0C	Injection diagnostics: open circuit	-	20Hz
FlagInjSC	Injection diagnostics: short circuit	-	20Hz
FlagOut0C	Output diagnostics: open circuit	-	20Hz
FlagOutSC	Output diagnostics: short circuit	-	20Hz
Front_Brake_P	Front brake pressure *	bar	20Hz
Inlet_P	Intake pressure	mbar	20Hz
FuelTank_Level	Tank level	L	2Hz
Oil_P	Oil pressure	bar	20Hz
Throt	Throttle valve position	%	20Hz
VVT_POS	Camshaft position in relation to min. stop reference point	°Vil	20Hz
Gear	Gearbox ratio (= real ratio + 48)	-	20Hz
Rear_Brake_P	Rear brake pressure *	bar	20Hz
RPM	Engine speed	tr/min	20Hz
Speed	Car speed	km/h	20Hz
SWPitLim_State	Speed limiter switch status	-	20Hz
SWUpshift_State	Upshift switch status	-	20Hz
Tbox	Internal ECU temperature	°C	20Hz
Vbatt	Battery voltage	V	20Hz
Fan	Fan (=1 if fan ON)	-	1Hz
VitAVD_filt	Front right wheel speed	km/h	20Hz
VitAVG_filt	Front left wheel speed	km/h	20Hz
Water_T	Water temperature	°C	20Hz

** These channels are only active if the data acquisition kit is used*

6.2 DATA ACQUISITION KIT

6.2.1 PRESENTATION

Clio Cup can be equipped as an option with a data acquisition kit (ref. **77 11 160 377**). This kit is the only additional data acquisition system authorized on the vehicle.
It aids understanding of the vehicle's dynamic behaviour by accessing greater analysis options using the Wintax3 application (e.g. circuit layout).
It shows lap times (by using the trackside beacons) and brake pressures on the display.

This kit is available from the Renault Sport Competition Parts Department at a cost of €1,087.42 VAT Excl..

Note: *No modifications to the on-board electronic system and the external operating system (computers, software, etc) are required for the acquisition kit to operate.*

6.2.2 MAIN ADDITIONAL CHANNELS AVAILABLE ON WINTAX3

- Longitudinal acceleration of the vehicle: “Accel X”.
- Lateral acceleration of the vehicle: “Accel Y”.
- Front brake pressure: “Front_Brake_P”.
- Rear brake pressure: “Rear_Brake_P”.
- Brake ratio: “Brake_Ratio”.
- Lap time: “Lap Time”.
- Lap distance: “Distance Lap”.
- Fuel consumption per lap: “Conso Lap”.

6.2.3 KIT CONTENTS

This optional acquisition kit is a complete, ready-to-use kit containing:

- One 2-axis accelerometer
(ref. **77 11 158 011)**



- 1 lap time cell
(ref **77 11 160 378**)



- 1 cell bracket
(ref. **77 11 160 331**)



- 2 brake pressure sensors
(ref. **77 11 156 137**)



- 1 front braking circuit adaptor
(ref. **77 11 160 147**)



- 1 rear braking circuit adaptor
(ref. **77 11 156 571**)



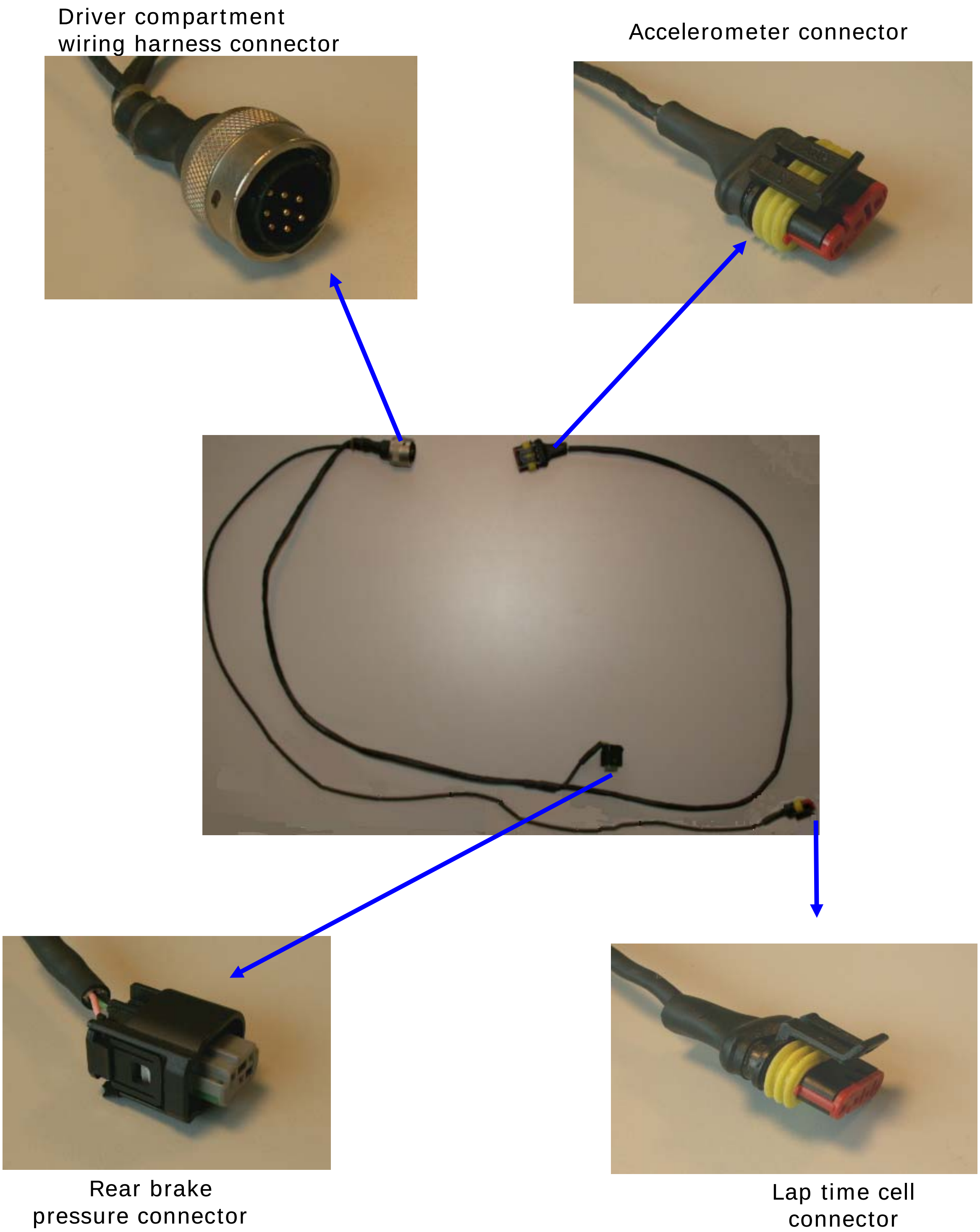
- 1 front braking circuit banjo
(ref. **77 11 160 248**)



- 2 copper seals
(ref. **77 11 156 432**)



- 1 specific wiring harness (ref. **77 11 160 379**)

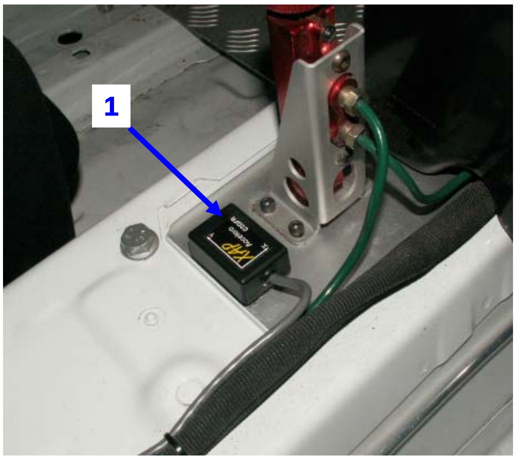


6.2.4 KIT INSTALLATION

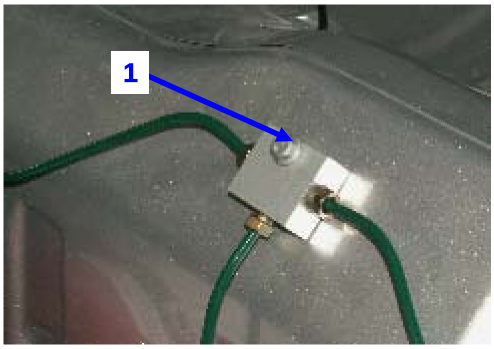
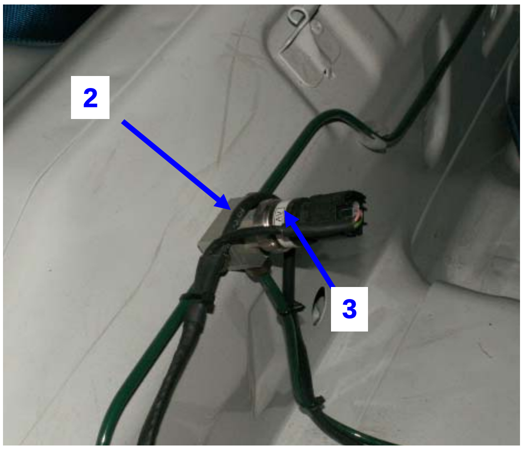
Fitting the accelerometer

The accelerometer **(1)** must to be positioned on the brake limiter support plate, as shown in the photo. It is thus positioned along the axis of the vehicle's centre of gravity.

The use of adhesive "Velcro" for securing the accelerometer is recommended.



Fitting the rear brake pressure sensor

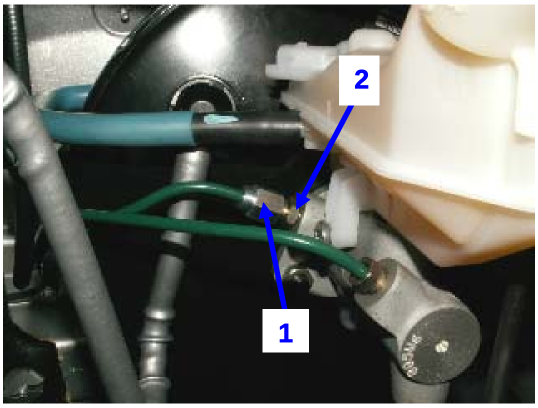
Operations	Photos
1 - Remove the mounting bolt **(1)** from the "T" of the rear braking circuit.	
2 - Remove the "T" from the rear braking circuit, watching out for any brake fluid discharge. **3 -** Fit the optional "T" **(2)** on the rear braking circuit. **4 -** Fit the pressure sensor **(3)** on the optional "T".	

Fitting the front brake pressure sensor

Operations | **Photos**

1 - Undo the front right hand brake pipe connector **(1)** from the master cylinder, watching out for any brake fluid discharge.

2 - Remove the male/male adaptor **(2)** from the master cylinder.



3 - Fit the banjo on the adaptor, inserting a copper seal between the two components.

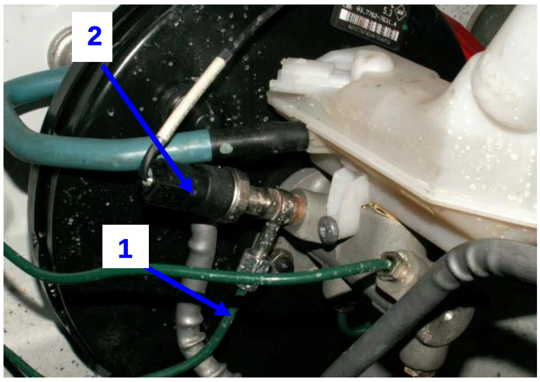


4 - Screw the assembly onto the master cylinder, using the second copper seal.



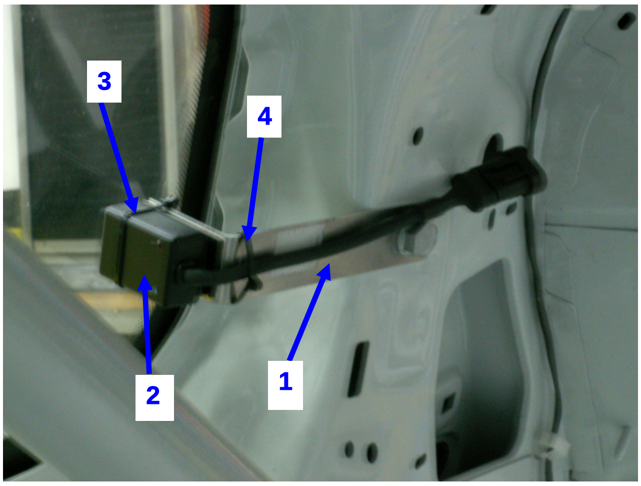
5 - Screw the front right hand brake pipe **(1)** onto the banjo.

6 - Screw the front brake pressure sensor **(2)** onto the adaptor.



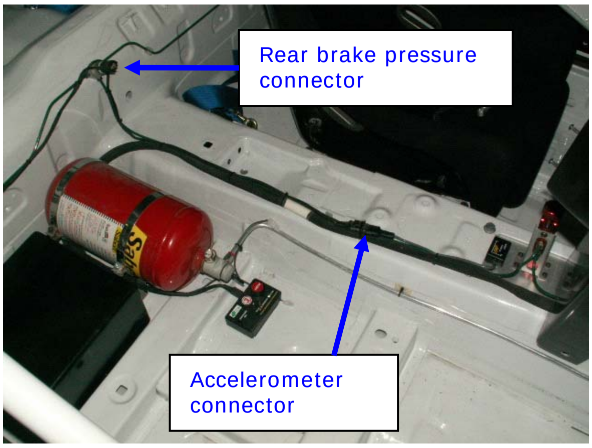
Fitting the lap time cell

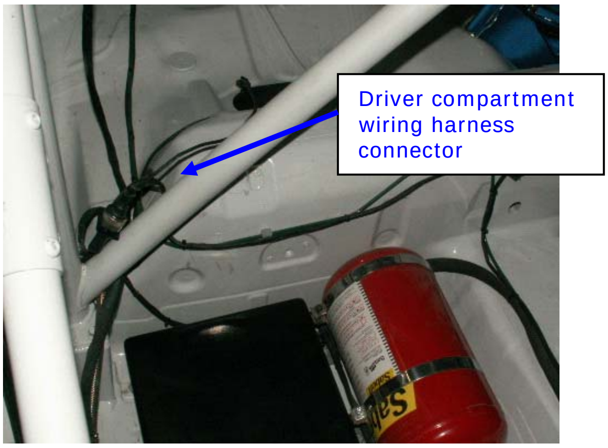
The cell is positioned at the rear of the rear right hand quarter panel.

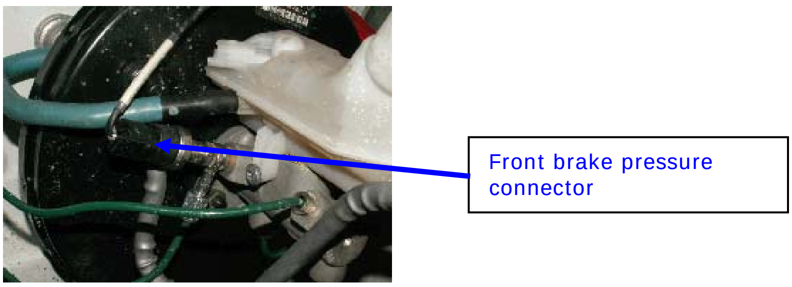
	Operations	Photos
1 -	Secure the cell bracket **(1)** to the body, using an M10x150 – 20 flanged screw.	
2 -	Secure the lap time cell **(2)** to the bracket using a plastic clip **(3)** and adhesive “Velcro”.	
3 -	Secure the cell harness to the bracket, using plastic clips **(4)**.	

Fitting the optional data acquisition harness

Position the harness as shown on the photos below:







Note: *The front brake pressure connector is positioned under the windshield aperture on the standard wiring.*

6.2.5 PROCEDURE FOR RESETTING THE ACCELEROMETER AND BRAKE PRESSURE SENSORS

The accelerometer and brake pressure sensors are reset using the following procedure:

- Switch off the main power supply (switch **(1)** on the control panel).
- Press the accelerator pedal to the floor.
- Switch on the vehicle's electrics (switch **(1)** on the control panel) while keeping the accelerator pedal pressed for at least 5 seconds.
- Check that the values of vehicle acceleration and brake pressure have been reset.

Notes: *This operation must be performed with the vehicle on a flat, level surface.*
This operation also resetting the oil pressure sensor.

6.2.6 TRACKSIDE BEACON

To ensure that the lap times appear on the display and that data acquisition is split lap by lap, the trackside beacon (ref. **77 11 160 380**) sold by the Renault Sport Competition Parts Department must be used.

Note: *It is important for the beacon to be correctly oriented to ensure optimum operation.*